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EXAMINER
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1631	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/797,359	BOYER ET AL.	
	Examiner	Art Unit	
	KARLHEINZ R. SKOWRONEK	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,6-21,24-39 and 42-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3, 6-21, 24-39 and 42-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Status

Claims 1-3, 6-21, 24-39 and 42-46 are pending.

Claims 4-5, 22-23, and 40-41 are cancelled.

Claims 1-3, 6-21, 24-39 and 42-46 are being examined.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19-21 24-36 and 43-46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 19-21 24-36 and 43-46 are directed to systems for processing text documents comprising units. The claims are unclear with respect to the limitations that define the system such that the metes and bounds of the system is indefinite. The claims recite “units” which perform active steps. The specification does not describe the “unit", thus the term is given its ordinary meaning as an element of a whole. A review of the specification reveals that the specification does not limit the recited units to either hardware or software. For example the specification at p. 7 line 6-8, states the system

embodiments can include one computer. Other instances of “unit” describe the functionality of the various units. As set forth below, claims 19-21 24-36 and 43-46 invokes 35 USC 112, Sixth Paragraph. The MPEP2181 (II) states, “If an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112.” In re Donaldson Co., 16 F.3d 1189, 1195, 29 USPQ2d 1845, 1850 (Fed. Cir. 1994) (in banc). In the instant case, the specification does not provide an adequate disclosure showing the structure, material or acts for these “means-plus-function” limitations, for reasons as set forth above.

Claims 24, 30-32, and 44 recite “limitations" of the system of claims 19 and 43, but appear to recite method steps. Parent claim 19 is directed to a system comprising various units for performing specifies functions. It is unclear what limitation of the system is intended by reciting apparent method steps, therefore claims 24, 30-32, and 44 are indefinite.

First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 19-21 24-36 and 43-46 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to

reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claims 19-21 24-36 and 43-46 are directed to a system for document processing. First, the claims recite limitations using the phrase "unit to", which is interpreted as being equivalent to “means for”. Second, in claims 19-21 24-36 and 43-46 the recited limitations modify the phrase "means for" with functional language. For example, line 5 of claim 19 recites "a unit to recognize any substructures present in the chemical name fragment”. Finally, the “unit to" phrases of claims 19-21 24-36 and 43-46 are not modified by sufficient structure, material, or act for achieving the functions of claims 19-21 24-36 and 43-46. On the basis of the previous three conditions in claims 19-21 24-36 and 43-46, the limitations of claims 19-21 24-36 and 43-46 are considered to invoke 35 USC 112, Sixth paragraph as set forth in MPEP 2181.

35 U.S.C. 112, sixth paragraph states that a claim limitation expressed in means-plus-function language “shall be construed to cover the corresponding structure…described in the specification and equivalents thereof.” “If one employs means plus function language in a claim, one must set forth in the specification an adequate disclosure showing what is meant by that language.” In re Donaldson Co., 16 F.3d 1189, 1195, 29 USPQ2d 1845, 1850 (Fed. Cir. 1994) (in banc).

In the instant case, the specification fails to set forth an adequate disclosure of what is meant by "a unit to recognize any substructures present in the chemical name fragment” as recited in claims 19-21 24-36 and 43-46.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 19-21 and 24-46 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 37-42 are directed a computer program product for storing a set of computer instructions in computer readable form. "Computer instructions" is a broad term which encompasses functional and non-functional descriptive material. A computer program listing or program per se is a description of computer instructions that are not executable and therefore is non-functional descriptive material per se and not statutory.

Claims 37-42 are drawn to a computer program on computer readable media. A review of the specification does not show a definition of computer readable media such that excludes an embodiment that is information in a signal. As such an embodiment of the claims read on non-statutory subject matter (In re Nuijten 84 USPQ2d 1495 (2007)). The applicants may overcome the rejection by amendment of the claims to be limited to physical forms of computer readable media described in the specification, or if no description exists for physical computer readable media, by presenting a statement that the claims do not read on embodiments that are not physical computer readable media that are conventional in the art.

Claims 19-21 24-36 and 43-46 are nonstatutory as being directed to a program per se. The claims recite a system comprising units. A review of the specification reveals that the specification does not limit the recited units to either hardware or a

program. For example the specification at p. 7 line 6-8, states the system embodiments can include one computer. For the purpose of this rejection, the term is being interpreted to be directed to a program. Therefore the term "system" is broadly interpreted to be a program per se. As guided by the MPEP at 2106.01(I):

> Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The following rejection is maintained from the previous action.

Claims 1-3, 6-7, 9-17, 19-21, 24-25, 27-35, 37-39, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friedman (US PAT 6,182,029), in view of Brecher (US PAT 7,054,754) in view of Moore et al. (US PAT 5,577,239) in view of Dittmar et al. (J. Chem. Inf. Comput. Sci., Vol. 23, No. 3, p93-102, 1983), in view of Hull et al. (US PAT 6,332,138) and in view of Leiter et al. (J. Chem. Doc., Vol. 15, No. 4, p. 238-242, 1965).

The claims are directed to a method of processing a text document, comprising: partitioning text of the text document and assigning semantic meaning to words, where assigning comprises applying a plurality of regular expressions, rules and a plurality of dictionaries to recognize chemical name fragments; recognizing any substructures present in the chemical name fragments; and determining structural connectivity information of the chemical name fragments and recognized substructures; extracting identifying information from the recognized chemical name fragments and substructures and storing the identifying information with determined structural connectivity information in a searchable index. Some embodiments are drawn to searching an index

by at least one of a fragment or substructure connectivity using a graphical user interface. Some embodiments are drawn characters comprising at least one of upper case C, O, R, N, H. In some embodiments, extracting comprises extracting text terms and indexing the terms and the search comprises a substructure graphical representation and a text term. In some embodiments, extracting comprises extracting text terms and indexing the terms and the search comprises entering a text term and a structural connectivity. In some embodiments, searching further comprises entering at least one search term and the search results an indexed representation and indexed text to identify a document relating to a chemical compound. Similarly, claim 19 is drawn to a system and claim 37 is drawn to a computer program product automating the method of claim 1 and its dependents.

Friedman shows a method and system for extracting information from natural language text data. Friedman shows information is extracted from text documents (col. 4, line 59-63). Friedman shows that the text of the text document is partitioned into phrases (col. 6, line 36-45). Friedman shows that partitioned phrases are further parsed to assign semantic meaning to words (col. 6, line 63-65). Friedman suggests that chemical information can be identified and extracted (col. 11, line 34-50). Friedman shows the method provides reliable and efficient access to information within a document and is useful for retrieving and summarizing relevant information in documents (col. 4, line 59-67).

Friedman does not show the application of regular expressions and a plurality of chemical dictionaries to recognize chemical names or storing information in a searchable index.

Brecher shows a method system and computer program product for processing text documents to extract chemical information. Regarding claims 11-13 and 29-31, Brecher shows the application of regular expression (col. 5, line 41-45) and a plurality of dictionaries to recognize chemical names (col. 6, line 29-40) by scanning the buffer, which reads on filtering. Regarding claims 14-15 and 32-33, Brecher shows that regular expressions comprise a plurality of patterns that further comprise letters, numbers and punctuation including hyphen, colon, semicolon, and parenthesis (col. 5, line 45-65). Regarding claim 17, 35, Brecher shows characters comprise strings that include “ane” (col. 6, line 35-36). Regarding claims 9-10, 27-28, Brecher shows that the lexicon has at least a sub lexicon to identify stop-words (col. 8, line 49-50), prefixes (col. 9, line 55) or suffixes (col. 11, line 43). Brecher shows that substructures are recognized (col. 6, line 31-33). Regarding claims 7, 25, Brecher shows that structural connectivity is determined (col.7, line 35-57). Brecher shows connection tables are associated with each record of the lexicon, reading a structure dictionary (col. 7, line 1-13). Brecher et al. shows that identifying information is extracted from the substructures and fragments to produce a fully parsed chemical name that is correlated to a chemical structure. Brecher shows the method allows chemical names to be accurately converted to chemical structures in real time or in nearly real time to provide users with a powerful, practical tool (col. 2, line 11-14).

Moore et al. shows a method of storing extracted identifying information in a searchable index (col. 4, line 28-35). Regarding claims 2-3, 20-21 and 38-39, Moore et al. shows that the index can be searched by a combination of substructure names, reading on text terms and keywords (col. 7, line 47-48) and connectivities, reading on graphical representations (col. 10, line 43-46). Moore shows that multiple databases can be interrelated to form a relational database forming an integrated chemical information system that can be searched using combination searches (col. 11, line 1-8). Moore et al. shows the method has the advantage of simplified search queries (col. 12, line 42-46). Moore et al. shows the method has the further advantages of reducing database development and maintenance costs, simplify interfacing with other information systems (col. 2, line 10-23).

Friedman, in view of Brecher and in view of Moore et al. does not teach searching an index by at least one of a fragment or substructure connectivity using a graphical user interface or characters comprising at least one of upper case C, O, R, N, H.

Dittmar et al. shows searching an index by at least one of a fragment or substructure connectivity (p.99, col. 2, para2, sent. 1) using a graphical user interface (p. 93, col. 1, para. 3, sent. 2). Regarding claims 16 and 34, Dittmar et al. shows characters comprising at least one of upper case C, O, R, N, H (p. 98, col. 1 par 2, sent. 3; para.3, sent. 1; and p. 99, para 2-3). Dittmar et al. shows the implementation of a user interface to simplify searching (p. 93, col. 1, para 3, sent. 1).

Hull et al shows extracting keywords and storing identifying information and keywords in association with structural connectivity in a searchable index and then searching the index using a keyword and a chemical fragment. Hull teaches extracting keywords from the document (col. 9, lines 15 -32). Extracted identifying information is stored in association with structural connectivity information in a searchable matrix (index) (col.10, lines 32-52). Hull et al. teach the searching of the index by a keyword and a fragment/substructure name or connectivity (col. 16, lines 21-33, and col. 13, lines 40 -67). Hull describes an embodiment in which the search is a combined structure and text query (col. 16, lines 21-33). Regarding claim 6, 24, and 42, Hull describes that the search result identifies documents that are the intersection of the combined query terms relating to the corresponding chemical compound (col. 16, lines 28-33). Hull et al. shows the method allows researchers to take advantage of past experiments described in the literature to gain an advantage in the development of new drugs (col.12, line 17-20). Hull et al. shows the method will allow the identification of potential uses for and/or problems with new drugs saving millions of dollars in research and development costs (col. 12, line 15-17). Hull et al. demonstrates the success of the method to identify compounds sharing substructures (col 12, line 22 to col. 15, line 25).

Leiter et al. shows the storage of structural information and text information (reading on keywords) in searchable indices (Fig 2). Leiter et al. shows searching indices to identify documents related to a chemical compound (p. 238, col. 2, lines 5-7).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify the method of extracting information from natural language text

documents of Friedman with the method of extracting chemical information from text of Brecher and the method of storing and searching chemical identifying information of Moore et al. because Brecher shows chemical names can be accurately converted to chemical structures in real time or in nearly real time which is advantageous. It would have been further obvious to modify the method of extracting information from natural language text documents of Friedman with the method of extracting chemical information from text of Brecher and the method of storing and searching chemical identifying information of Moore et al. because Moore et al. shows the method has the advantages of reducing database development and maintenance costs, simplify interfacing with other information systems. It would have been further obvious to combine the teaching Friedman, in view of Brecher and in view of Moore et al. with the graphical user interface of Dittmar et al. because Dittmar et al. teach the implementation of a user interface to simplify searching (p. 93, col. 1, para 3, sent. 1). It would have been further obvious to combine the teaching Friedman, in view of Brecher in view of Moore et al. and the graphical user interface of Dittmar et al. with the method of Hull et al. for keyword extraction, storage of identifying information in association with chemical structural connectivity and the searching of the index by a keyword and chemical connectivity or name because Hull et al. teach the method allows researchers to take advantage of past experiments described in the literature to gain an advantage in the development of new drugs. One would have been motivated to do so by Hull et al. because Hull et al. shows the method will allow the identification of potential uses for and/or problems with new drugs saving millions of dollars in research and development

costs. It would have been further obvious to combine the method and system of Friedman, in view of Brecher in view of Moore et al., in view of Dittmar et al. and the method of Hull et al. demonstrating keyword extraction, storage of identifying information in association with chemical structural connectivity and the searching of the index by a keyword and chemical connectivity or name with the indices of Leiter et al. because the combination of the three references provides the functionality of using the indices to find documents of interest quickly and efficiently.

Response to Arguments

Applicant's arguments filed 25 November 2008 have been fully considered but they are not persuasive. Applicant argues that the Friedman et al. does not suggest the recognition of chemical names in a document. This argument is not persuasive. As indicated in the rejection, Friedman does not explicitly recite the recognition of chemical names from text. Rather, Friedman et al, as identified in the rejection and reiterated by applicant, suggest the chemical names can be documented or "tagged" using Chemical Markup Language (CML) (col. 11, line 46-48). Thus, while Friedman et al. does not explicitly show the recognition of chemical names. Friedman does show the semantic parsing or "partitioning" of documents using a lexicon to "tag" recognized words or terms using XML. Brecher et al. shows the recognition of chemical names. Applicant argues that neither Brecher et al. nor Friedman et al. shows partitioning text documents. The argument is not persuasive. Brecher et al. shows the file based inputs, reading on text documents (col. 2, line 49). Brecher et al. shows that regular expressions are applied to parse or "partition" the text (col. 5, line 40-50). Brecher et al. shows the

names are looked up in a chemical lexicon (col. 6, line 30-40). Applicant argues the teachings of Brecher et al. contradict the teachings of Dittmar et al. The argument is not persuasive. As applicant points out, Brecher et al. does show that chemical names are first converted to lower case. However Brecher et al. shows atomic chains are in upper case (col. 10, line 1-19). Dittmar et al. also shows that atomic chains are in upper case. Furthermore, the claims do not require that all steps be performed with uppercase letters. The claims only requires that the characters of the regular expression comprise the uppercase at least one of C, O, N, R, and H. Brecher et al. shows the regular expressions scan the buffer for uppercase O, N and R (col. 4-5). Applicant argues that Hull et al. does not show extracting keywords. The argument is not found persuasive. Hull et al. describes generating a database of keywords or descriptors (col. 9, line 15-30). Hull et al. further shows that the descriptors or keywords can be chemical name fragments as textual representations of chemical descriptors (col. 9, line23-25). Hull shows the database can be searched by a text word and a structure (col. 10, line 54-57). Applicant argues that Moore et al. does not show a search query of a chemical name and a chemical structure. The argument is not persuasive. Moore et al. shows chemical names or name fragments and chemical substructures can be searched (col. 2, line 43-54). One would have been motivated by Hull et al. to combine text and structure searching because Hull et al. shows that the combined text structure search advantageously improves the search by "tweaking" (col. 16, line 25-27). Applicant argues that Friedman et al. in view of Brecher et al. in view of Moore in view of Hull et al. in view of Dittmar et al. and in view of Leiter does not show selecting a graphical

representation. The argument is not persuasive. Hull et al. shows that chemical structures are searched (col. 12, line 64-67; col. 13, line 17-19). Hull et al. shows the query structure is translated in connection table (col. 10, line 55-61). Moore et al. shows the entry of a structure to be queried (col. 8, line 16-21). Moore et al. shows entry of chemical structures by selection (col. 4, line 28-35). Both Moore et al. and Hull teach the translation of a graphical representation to a connection table. With respect that applicant's argument that Friedman et al. in view of Brecher et al. in view of Moore in view of Hull et al. in view of Dittmar et al. and in view of Leiter does not show claim 3. The argument is not persuasive. Moore et al. shows that connection tables are representations of chemical structure (col. 4, line 37-52). As addressed above, Moore shows that system automatically generates a connection table from the substructure entered by the user (col. 7, line 49-56; col. 4, line 28-35). The rejection is maintained.

The following rejection is reiterated from the previous action.

Claims 8 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friedman, in view of Brecher, in view of Moore et al., in view of Dittmar et al., in view of Hull et al. and in view of Leiter et al. as applied to claims 1-3, 6-7, 9-17, 19-21, 24-25, 27-35, 37-39, and 42 above, and further in view of Drefahl et al. (J. Chem. Inf. Comput. Sci., Vol. 33, 886-895,1993) and Murray-Rust et al. (New J. Chem., Vol. 25, p 618-634, 2001).

Claims 8 and 26 are directed to representations comprising MOL type and SMILES type representations.

Friedman, in view of Brecher, in view of Moore et al., in view of Dittmar et al., in view of Hull et al. and in view of Leiter et al. as applied to claims 1-3, 6-7, 9-17, 19-21, 24-25, 27-35, 37-39, and 42 above does not show representations comprising MOL type and SMILES type representations.

Drefahl et al. teach a structure dictionary comprising at least one of a MOL dictionary and a SMILES dictionary (abstract, sent. 3). Drefahl et al. shows representations comprising SMILES type representations (p.888).

Murray-Rust et al. shows chemical representations can be MOL type representation and SMILES type representations (p. 626). Murray-Rust et al. shows MOL type representations have the advantage of being extremely terse (p. 626, col. 1).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Friedman, in view of Brecher, in view of Moore et al., in view of Dittmar et al., in view of Hull et al. and in view of Leiter et al. as applied to claims 1-3, 6-7, 9-17, 19-21, 24-25, 27-35, 37-39, and 42 above and the SMILES and MOL notations of Drefahl et al. and Murray Rust et al. because Drefahl et al. and Murray-Rust et al. show that SMILES and MOL notations provides a compact and computationally amenable way to encode chemical structure information.

One would have had a reasonable expectation of success because Drefahl et al. describe the successful application of a SMILES dictionary structure-based retrieval and searching.

The following rejection is reiterated from the previous action.

Claim 18 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friedman, in view of Brecher, in view of Moore et al., in view of Dittmar et al., in view of Hull et al. and in view of Leiter et al. as applied to claims 1-3, 6-7, 9-17, 19-21, 24-25, 27-35, 37-39, and 42 above, and further in view of Kemp et al. (J. Chem. Inf. Comput. Sci., Vol. 38, p. 544-551, 1998).

Claims 18 and 36 are drawn to tokenizing a document to produce a series of tokens.

Friedman, in view of Brecher, in view of Moore et al., in view of Dittmar et al., in view of Hull et al. and in view of Leiter et al. as applied to claims 1-3, 6-7, 9-17, 19-21, 24-25, 27-35, 37-39, and 42 above does not teach tokenizing a document to produce a series of tokens.

Kemp et al. teach the tokenization of documents into a sequence of tokens (p. 547, 2nd para, sent. 2).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the method of Friedman, in view of Brecher, in view of Moore et al., in view of Dittmar et al., in view of Hull et al. and in view of Leiter et al. as applied to claims 1-3, 6-7, 9-17, 19-21, 24-25, 27-35, 37-39, and 42 above with the tokenization of Kemp et al. because Kemp et al. shows tokenization is useful to prepare data for automated analysis. One would have had a reasonable expectation of success because Kemp et al. teach regarding text processing procedures that even simple methods can achieve very high degree of success (Kemp et al., abstract).

The following rejection is reiterated from the previous action.

Claims 43-44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Friedman, in view of Brecher, in view of Moore et al., in view of Dittmar et al., in view of Hull et al. and in view of Leiter et al. as applied to claims 1-3, 6-7, 9-17, 19-21, 24-25, 27-35, 37-39, and 42 above, and Shivaratri et al. (Computer, p. 33-44,December 1992).

The claim is directed to a system of computers coupled through a data communications network comprising a unit to parse document text; a unit to recognize substructures in chemical name fragments; a unit to identify structural connectivity in fragments and substructures and store the structural connectivity information in a searchable index.

Friedman, in view of Brecher, in view of Moore et al., in view of Dittmar et al., in view of Hull et al. and in view of Leiter et al. teaches a method of parsing text to recognize chemical name fragments and any substructures in the chemical name fragments substructures as described above. Regarding claim 44, Hull describes that the search result identifies documents that are the intersection of the combined query terms relating to the corresponding chemical compound (col. 16, lines 28-33).

Friedman, in view of Brecher, in view of Moore et al., in view of Dittmar et al., in view of Hull et al. and in view of Leiter et al. does not teach a system of computers coupled through a data communications network.

Shivaratri et al. teach a system of computers coupled through a data communication network to generate a distributed computing system (p. 33, para 4, sent. l).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the method of Friedman, in view of Brecher and in view of Moore et al. with the teachings of Shivaratri et al. because distributing computational loads improves performance of computational tasks. One would have been motivated by Shivaratri et al. who describe the advantages of distributed computing systems as offering high performance, availability, and extensibility at low cost (p. 33, para. 1, sent.2). One would have had a reasonable expectation of success because Shivaratri et al. describe the successful implementation of distributed computing systems.

The following rejection is reiterated from the previous action.

Claim 45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Friedman, in view of Brecher, in view of Moore et al., in view of Dittmar et al., in view of Hull et al. and in view of Leiter et al., and Shivaratri et al. as applied to claim 43 above, and further in view of Drefahl et al. (J. Chem. Inf. Comput. Sci., Vol. 33, 886-895,1993) and Murray-Rust et al. (New J. Chem., Vol. 25, p 618-634, 2001).

Claim 45 is directed to a structure dictionary that is used to determine structural connectivity information.

Claim 46 is directed to representations comprising MOL type and SMILES type representations.

Friedman, in view of Brecher, in view of Moore et al., in view of Dittmar et al., in view of Hull et al. and in view of Leiter et al. and Shivaratri et al. teaches a method of parsing text to recognize chemical name fragments and any substructures in the chemical name fragments substructures as described above. Regarding claim 45,

Brecher shows that structural connectivity is determined (col.7, line 35-57). Brecher shows connection tables are associated with each record of the lexicon, reading a structure dictionary (col. 7, line 1-13).

Friedman, in view of Brecher, in view of Moore et al., in view of Dittmar et al., in view of Hull et al. and in view of Leiter et al. and Shivaratri et al. does not teach a structure dictionary comprising at least one of a MOL dictionary and a SMILES dictionary.

Drefahl et al. teach a structure dictionary comprising at least one of a MOL dictionary and a SMILES dictionary (abstract, sent. 3). Drefahl et al. shows representations comprising SMILES type representations (p.888).

Murray-Rust et al. shows chemical representations can be MOL type representation and SMILES type representations (p. 626). Murray-Rust et al. shows MOL type representations have the advantage of being extremely terse (p. 626, col. 1).

It would have been obvious to one of ordinary skill in the art at the time of invention to combine the teachings of Friedman, in view of Brecher, in view of Moore et al., in view of Dittmar et al., in view of Hull et al. and in view of Leiter et al. and Shivaratri et al. and Drefahl et al. because Drefahl et al. and Murray-Rust et al. show that SMILES and MOL notations provides a compact and computationally amenable way to encode chemical structure information. One would have been motivated by Shivaratri et al. who describe the advantages of distributed computing systems as offering high performance, availability, and extensibility at low cost (p. 33, para. 1, sent.2). One would

have had a reasonable expectation of success because Shivaratri et al. describe the successful implementation of distributed computing systems.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KARLHEINZ R. SKOWRONEK whose telephone number is (571)272-9047. The examiner can normally be reached on 8:00am-5:00pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie Moran can be reached on (571) 272-0720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/K. R. S./
Examiner, Art Unit 1631

1 April 2009

/Marjorie Moran/
Supervisory Patent Examiner, Art Unit 1631